

I Claim:

1 1. A photosensitive array comprised of a plurality of pixels arranged in columns
2 and rows, wherein the pixels are configured such that each said pixel has two
3 transistors; including

4 a pixel output transistor having a sense electrode and an output electrode;
5 a reset transistor having a gate coupled to receive a reset signal and an output
6 coupled to the sense electrode of the associated pixel output transistor; and
7 each said pixel also including a photosensitive element having an output
8 electrode coupled to the sense electrode of the pixel output transistor.

1 2. A photosensitive array according to Claim 1 wherein the photosensitive element
2 of each said pixel includes a photogate that captures and accumulates photon-
3 generated charge; a sense gate positioned on said photogate; and a sense node that
4 surrounds the photogate.

1 3. A photosensitive array comprised of a plurality of pixels arranged in columns and
2 rows, wherein the pixels are configured into groups of at least a first pixel and a
3 second pixel, each said group including

4 a shared pixel output transistor having a sense electrode and an output
5 electrode;

6 a reset transistor having a gate coupled to receive a reset signal and an output
7 coupled to the sense electrode of the associated shared pixel output transistor; and

8 each of said first and second pixels including a photosensitive element having
9 an output electrode coupled to the sense electrode of the shared pixel output

10 transistor and a gate electrode coupled to receive respective first and second pixel
11 gating signals.

1 4. A photosensitive array according to Claim 3 wherein said first and second pixels
2 of each said group are both disposed in the same column.

1 5. A photosensitive array according to Claim 3 wherein the first and second pixels
2 of each said group are disposed in successive columns in a single row.

1 6. A photosensitive array according to Claim 3 wherein the photosensitive element
2 of each said pixel includes a photogate that captures and accumulates photon
3 generated charge; a sense gate positioned on said photogate; and a sense node that
4 surrounds the photogate.

1 7. A photosensitive array according to Claim 6 wherein the photosensitive elements
2 of said first and second pixels are adjacent one another and the sense nodes thereof
3 share a segment in common with one another.

1 8. A photosensitive array according to Claim 3 wherein each said photosensitive
2 element includes a sense node FET having a gate electrode.

1 9. A photosensitive array according to Claim 3 wherein each said photosensitive
2 element is formed of a charge snare device.

1 10. A photosensitive array according to Claim 3 wherein each said photosensitive
2 element is formed of a photogate and a transfer gate, wherein one electrode of a
3 transfer transistor thereof is connected to a photodiode and another electrode
4 thereof is connected to said sense electrode, and a gate of said transfer transistor is
5 connected to receive a control signal to operate timing of transfer and reset of said
6 photodiode.

1 11. A photosensitive array according to Claim 3 wherein each said photosensitive
2 element is formed of a photodiode and a transfer gate.

1 12. A photosensitive array according to Claim 11 wherein one electrode transfer
2 transistor of said transfer gate is connected to a photodiode and another electrode is
3 connected to said sense electrode, and a gate of said transfer transistor is connected
4 to receive a control signal to operate timing of transfer and reset of said photodiode.

1 13. A photosensitive array according to Claim 3 further comprising color filters on
2 said first and second photosensitive elements.

1 14. A photosensitive array according to Claim 3 wherein said groups each include
2 a third pixel and a fourth pixel, each of which includes a photosensitive element
3 having an output electrode coupled to the sense electrode of said shared pixel
4 output transistor, and a gate electrode to receive a respective gating signal.

1 15. A photosensitive array according to Claim 14 wherein said groups each include

2 a second reset transistor.

1 16. A photosensitive array according to Claim 3 wherein said groups each include
2 a third and fourth pixel, each of which includes a photosensitive element having an
3 output electrode, and a gate electrode to receive a respective gating signal; a second
4 pixel output transistor having a sense electrode coupled to the output electrodes of
5 the third and fourth pixel photosensitive elements; and a second reset transistor
6 having a gate coupled to receive a second reset signal and an output coupled to the
7 sense electrode of said second pixel output transistor.

1 17. A photosensitive array according to Claim 3 wherein said reset transistor is an
2 FET having a drain thereof connected to the sense electrode of said pixel output
3 transistor.

1 18. A photosensitive array according to Claim 17 wherein said pixel output
2 transistor includes an FET having its gate electrode connected to the drain of the
3 FET of said reset transistor.

1 19. A photosensitive array according to Claim 3 wherein said group includes at
2 least a third pixel with the third pixel also sharing said pixel output transistor.

1 20. A photosensitive array according to Claim 3, wherein said group includes first,
2 second, third, and fourth pixels, in a 2X2 arrangement, all sharing said pixel output
3 transistor.